

Damage Assessment of  
Unauthorized Excavation  
Wilderness Battlefield  
Fredericksburg and Spotsylvania County Battlefields  
Memorial National Military Park

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## SUMMARY

On March 3, 2001, an instance of excavation without a permit as required by the Archeological Resources Protection Act of 1979 as amended (ARPA) occurred at the Fredericksburg and Spotsylvania County Battlefields Memorial National Military Park (FRSP).

Thirty four holes were excavated on lands within the Wilderness Battlefield Unit, disturbing a total of 2.9 cubic feet of soil, and damaging the archeological research potential of 1,110,000 square feet or 25.5 acres. The following values were determined as a result of this unauthorized activity:

Repair and Restoration	\$2506.25
Commercial Value of Artifacts	\$287.00
Archeological Value	\$19554.64

The felony threshold for ARPA violation is monetary damage in excess of five hundred (500) dollars. The monetary amount is determined by combining (1) the cost of repair and restoration and the commercial value of the resource or (2) the cost of restoration and repair and the archeological value of the resource. In example (1) this amount is \$2793.25 and in example (2) the amount is \$22060.89. In both instances, the felony threshold is substantially exceeded.

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## **1 Introduction**

On the evening of Saturday, March 3, 2001 I received notice from the Ranger Division of Fredericksburg and Spotsylvania County Battlefields Memorial National Military Park (FRSP) that unauthorized excavations had been conducted at the Wilderness Battlefield in Orange County, Virginia. As the ARPA Program Coordinator for the Chesapeake and Allegheny Clusters of the National Park Service (which includes FRSP) I consulted the list of Archeological Resources Protection Act (ARPA) permits issued under Section 4(a) I keep and determined that no valid ARPA permit had been issued for archeological investigations at the Wilderness Battlefield (or any other portion of the park). Because the persons suspected of conducting unauthorized excavations had on their possession artifacts dating to Civil War, possessed excavating tools, and were contacted in the vicinity of very recent excavations, I determined that there was reason to assume that they had excavated objects on public land of archeological interest that were over 100 years old which is a prohibited act under ARPA (Sec. 6(a)).

On the morning of Sunday, March 4, 2001 I traveled from my residence in Phoenixville, Pennsylvania (leaving at 9:00 am) to FRSP via rental car and met the rangers at the Chancellorsville Ranger Station, arriving at 2:00pm. I met Ranger Mike Greenfield and his staff who briefed me on the current status of the investigation. The ranger team had mapped the location of the excavations using a Trimble Pro XR unit global positioning system (GPS) unit, with sub-meter accuracy: 50 cm + 1ppm on a second-by-second basis (Horizontal) Submeter + 2ppm on a second-by-second basis (Vertical). The team had also photographed the unauthorized excavations and identified the largest of the unauthorized excavations. We proceeded to the damaged area where I re-excavated the largest of the unauthorized excavations to determine the volume of disturbed area and to recover any tool marks that could link the excavation to the tools in possession of the persons contacted. While I was conducting the re-excavation the Ranger team measured the dimensions of the other unauthorized excavations to determine the total volume of disturbance. After completing the initial re-excavation, I screened all of the disturbed soils from most of the disturbed areas; no additional artifacts were recovered during this process. The investigation was terminated by darkness and, with forecast of 1-2" of snow that evening, determined that additional data collection would not be possible. I traveled to my hotel for the evening, arriving at 7:00pm.

## **2 Area of Damage**

The area of damage is located within the Wilderness Battlefield Unit of Fredericksburg and Spotsylvania County Battlefields Memorial National Military Park (FRSP), lying in Orange County, Virginia (Figure 1). The unit contains the archeological resources associated with the Civil War Battle of the Wilderness fought on May 5-6, 1864, the first battle of the "Overland Campaign" which ended with the Federal Siege of

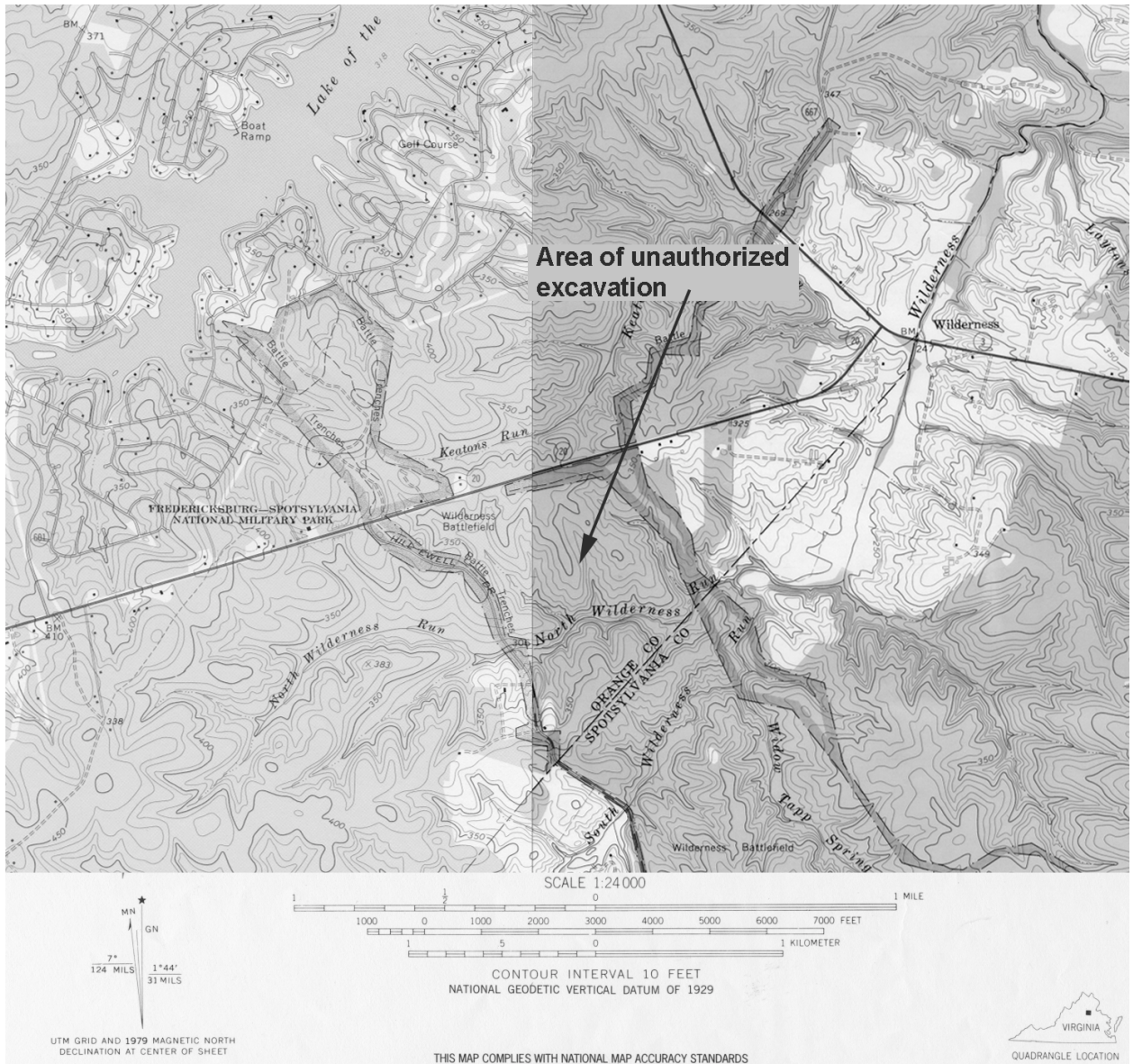


Figure 1: Location of unauthorized excavation. Detail from Mine Run Quadrangle 1979 and Chancellorsville Quadrangle (1966) 7.5 Minute Series (Topographic) U.S.G.S. 1:24000.

Petersburg and the end of the Civil War to the east. The unit has been identified by the Congressional Civil War Sites Advisory Committee as one of the 50 "priority battlefields" in the nation (GMP/EIS:15). The core areas of these priority battlefields are defined as "...those places where the combat engagement and key associated actions and features were located; the core area includes, among other things, what often is described as "hallowed ground"...The core area is generally the part that should remain undisturbed..." (GMP/EIS:15). The entire unit is listed on the National Register of Historic Places.

The opening battle of Grant's sustained offensive against the Confederate Army of Northern Virginia, known as the Overland Campaign, was fought at the Wilderness, May 5-7. On the morning of May 5, 1864, the Union V Corps attacked Ewell's Corps on the Orange Turnpike. With orders to attack immediately, Maj. Gen. Gouverneur K. Warren put the Union Fifth Corps in motion at 1:00 p.m., May 5, 1864. In the opening act of the Battle of the Wilderness, Brig. Gen. Charles Griffin's division struck the Confederate Second Corps at Saunder's Field (Figure 2). Brig. Gen. James Wadsworth advanced simultaneously through the woods and swamps to his left. Wadsworth's division, composed of three brigades; Cutler's, Stone's, and Rice's marched in battle lines through difficult, rolling woodlands and marshy bottoms produced by the Mill Branch of Wilderness Run. The area of unauthorized excavation is located at this location at the headwaters of the Mill Branch of the Wilderness Run. The broken terrain and heavy ground cover not only slowed progress to a crawl, but it severed contact between Griffin and Wadsworth. Wadsworth's command inched through the woods, completely oblivious to Griffin's initial success in carrying the Confederate lines. He was also unaware of a massive Southern counterattack that ejected Griffin's division from Saunder's Field. Wadsworth's division strayed into a no-man's land south of Saunders Field. Wadsworth's right brigade engaged Brig. Gens. George Doles and Junius Daniels' brigades in the woods. Confederate Second Corps commander, Lt. Gen. Richard S. Ewell predicted that the Union troops would turn his right flank if he did not drive them back.

Ewell asked Brig. Gen. John B. Gordon, of Georgia, for help. Ewell appealed to his lieutenant: "General Gordon, the fate of the day depends on you, sir!" Gordon replied, "These men will save it, sir!" Gordon led his Georgians to the right, ordering them to load their weapons on the run. Gordon promised, "Boys, there are Yankees in front and lots of them; we must move them." The Confederates sidled through the woods to a point to the right of where Griffin's Union attack had breached the line. Gordon moved to the center of his line and ordered an advance. "With a deafening yell which must have been heard miles away," recorded the general, "that glorious brigade rushed upon the hitherto advancing enemy, and by the shock of their furious onset shattered into fragments all that portion of the compact Union line confronting my troops." One of Gordon's men wrote, "I never heard such a yell as we raised. We could scarcely hear a gun fire, and could hardly tell when our own gun fired, only by the jar it gave us."

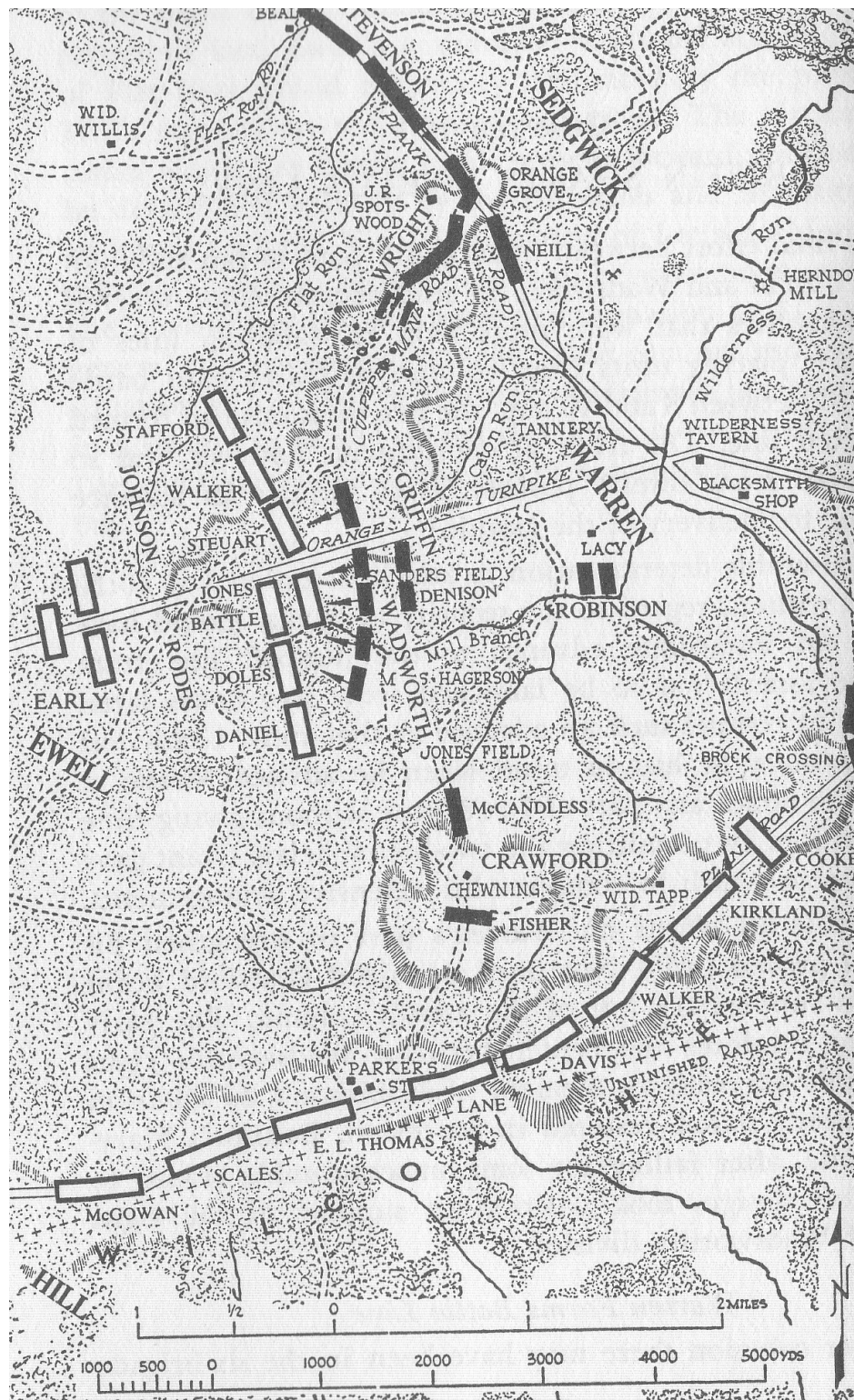


Figure 2: Troop movements in the area of unauthorized excavation at 1 p.m. on May 5, 1864 (Steere 1994: 150).

Gordon's counterattack struck all three Union brigades of Brig. Gen. James Wadsworth's division. Col. Lysander Cutler's brigade; the vaunted Iron Brigade held the right; Col. James Rice's brigade took the left and Col. Roy Stone's brigade held the middle. When Stone's brigade floundered in the swamp, the other two brigades advanced beyond its support. This broke the line into three parts with each brigade going in a different direction. Gordon's Brigade formed in the midst of the three brigades and lashed at all three. Gordon struck Cutler's Iron Brigade first, exploiting at its exposed left flank. The Southerners swarmed around the flank regiment, the 6th Wisconsin. The Northern regimental commander, Col. Rufus Dawes, wrote: "There came the enemy stretching as far as I could see through the woods and rapidly advancing and firing on us." Another Wisconsin man added, "A murderous volley from the left and front was poured into our ranks, followed by another from the right, both at short range, which caused surprise, confusion and some disorder." Surprised by the direction of the attack and uncertain as to the Confederate strength concealed in the woods, the Iron Brigade gave way and retreated across the rolling wooded hills. Some of the Confederates pursued them through the dense forest.

Gordon's center discovered Stone's brigade wallowing in the swampy Mill Branch valley, shortly after engaging Cutler's Iron Brigade. The Confederates caught the brigade strung out in a "champion mud hole of mud holes," unable to defend itself against the plunging fire emanating from the higher ground on either side of the valley. A member of the 121st Pennsylvania wrote: "When the order to retire was given, the scrambling to get out of that mud hole was amusing as well as ridiculous." During this stampede it very naturally followed that the men became somewhat confused and more or less scattered, many not being sure which way to run." A 143rd Pennsylvania soldier recalled, "The men scattered in every direction, most of them going down the swamp toward the right." A Union man reminisced about the site: "That's a hell of a looking hole to send white men into."

James Rice's line, the last of the Union brigades to be hit, also suffered from the surprise and confusion of the confining woods, broken ground, and wetlands. A soldier in the 76th New York reported: "The line on the right fell back in disorder and was followed by this Brigade. The underbrush was very dense, and the men found great difficulty in making their way through it. The enemy, still unseen, continued to pour in a very destructive fire." The Union line rapidly gave way and all three of Robinson's brigades retreated in disorder, leaving the Confederates in command of the high ground on either side of Mill Branch valley. Gordon's men continued to chase the Northerners. They met Wadsworth's reserve brigade, Col. Andrew Denison's Maryland brigade, and sent it reeling. The Union division did not stand its ground until it reached the Ellwood clearing. The Confederates pursued to the edge of the woods and then prudently withdrew to its former position near the Higginson farm.

### **3 Method of Assessment**

The site where the unauthorized investigations occurred lies northeast of the public picnic area and parking lot northeast of Hill-Ewell Drive (Figure 3) and were located in two clusters; an area measuring approximately 600 feet northeast/southwest and approximately 500 feet southeast/northwest (or 300,000 square feet) near the picnic area, and an area measuring approximately 900 by 900 feet (or 810,000 square feet) to the northeast.

All observations were documented in a field notebook, including a photographic log. Information recording techniques consisted of re-excavating the single pit-shaped excavation and measurement of the excavations that were not pit-shaped. The profile and plan of the pit-shaped excavation was recorded by photography and measured drawing. The field notes, and associated photographs will be curated at the park in perpetuity at the conclusion of the investigation.

A total of 34 unauthorized excavations were documented at the Wilderness Battlefield Unit (Table 1). Most of the unauthorized excavations consisted of narrow, linear disturbances in which a flat tool or probe was worked through the soil until presumably an object was encountered when it was then removed. Their dimensions were variable. Hole #32 was pit-shaped and measured 0.6 feet wide and 0.45 feet deep (Figure 4).

The disturbed soils for holes 1-20 and hole #32 were screened through one-quarter-inch mesh to determine if additional artifact deposits had been impacted by the unauthorized excavation. Soil from holes 21-34 (with the exception of #32) were not screened because of darkness and the advance of a rain/snow system that evening. No additional artifacts or features were recovered through this process. The unauthorized excavations were clustered into two areas; holes#10-19 (the south cluster), and holes #15-25 (the north cluster). Artifacts recovered from the investigation revealed a mix of bullet types typical to both Federal and Confederate small arms. Because the artifacts were collected without any location data (provenience) it is now impossible to associate any object with any location. The clustering of unauthorized excavations within 300 feet suggest that the two locations represent the scene of one of the many close-quarter actions that characterized the Battle of the Wilderness whose archeological examination would have a profound effect on the understanding of small-unit tactics and weaponry of the later phases of the Civil War as well as illuminating the specific events of the confused fighting in the area.

**Case # 0100059; 3 March 2001**  
**Wilderness Battlefield, Orange County, VA**

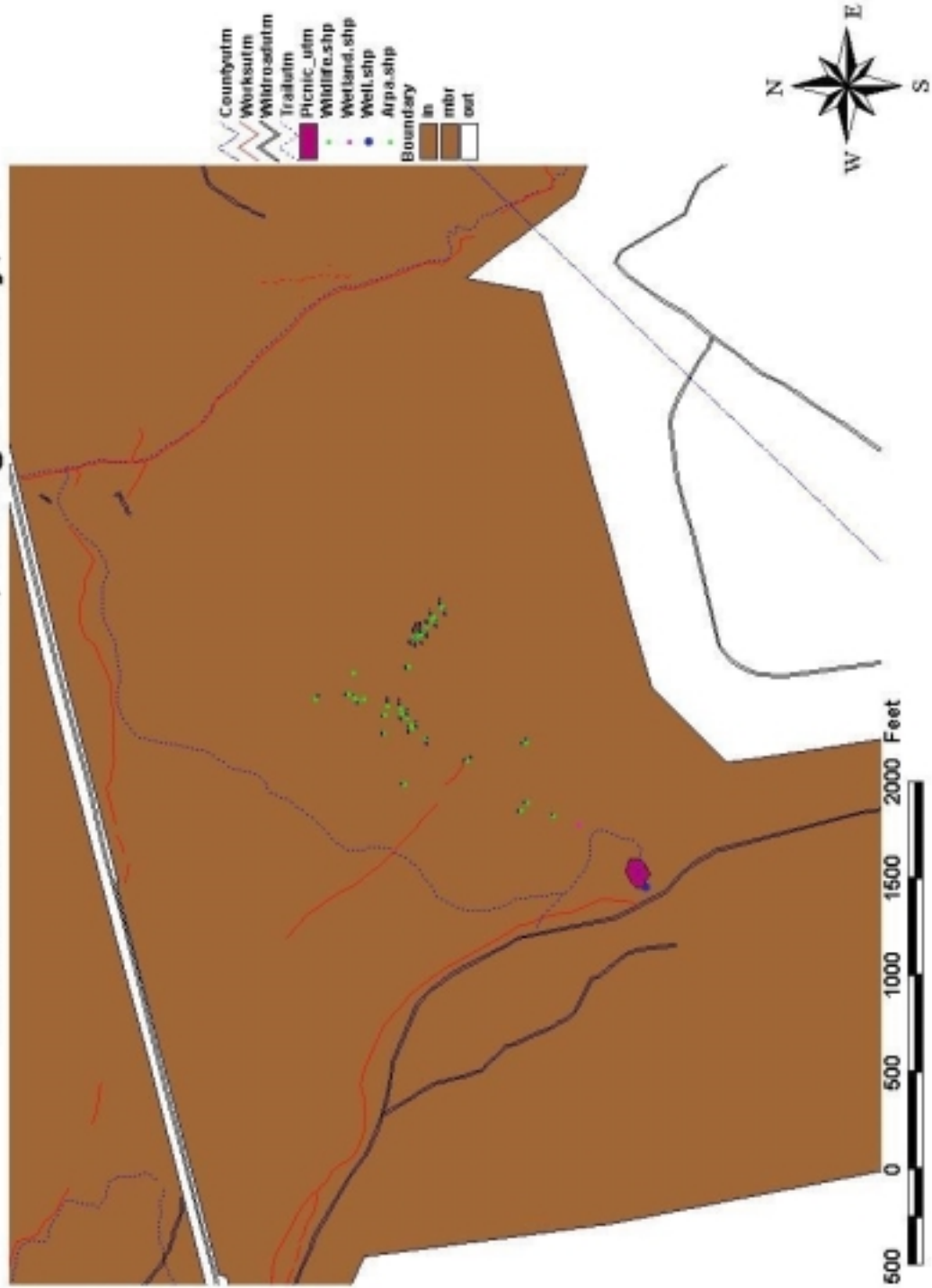


Figure 3: Location of unauthorized excavations.

Table 1: Dimensions of Unauthorized Excavations

Hole	Length (ft.)	Width (ft.)	Depth (ft.)	Volume (cu.ft.)
1	0.52	0.14	0.04	0.00292
2	0.70	0.42	0.06	0.01764
3	1.06	0.78	0.10	0.08268
4	0.46	0.40	0.04	0.00736
5	0.80	0.32	0.06	0.01536
6	0.60	0.22	0.06	0.00792
7	1.00	0.62	0.12	0.0744
8	0.82	0.30	0.06	0.01476
9	2.02	0.70	0.02	0.02828
10	0.70	0.28	0.08	0.01568
11	0.64	0.26	0.02	0.003328
12	0.32	0.26	0.14	0.011648
13	0.26	0.24	0.16	0.009984
14	0.74	0.30	0.06	0.01332
15	1.76	0.88	0.16	0.247808
16	1.50	1.30	0.14	0.273
17	1.36	1.30	0.14	0.24752
18	1.62	1.10	0.20	0.3564
19	0.76	0.58	0.12	0.052896
20	1.18	0.94	0.18	0.199656
21	0.72	0.48	0.10	0.03456
22	0.86	0.48	0.08	0.033024
23	1.98	1.44	0.06	0.171072
24	0.88	0.74	0.06	0.039072
25	1.18	0.96	0.04	0.045312
26	1.18	0.90	0.20	0.2124
27	1.62	1.12	0.16	0.290304
28	0.56	0.50	0.16	0.0448
29	0.90	0.60	0.02	0.0108
30	1.00	0.40	0.10	0.04
31	0.80	0.80	0.10	0.064
32	0.60	0.60	0.45	0.162
33	0.70	0.30	0.10	0.021
34	1.00	0.70	0.05	0.035
			TOTAL	2.882984

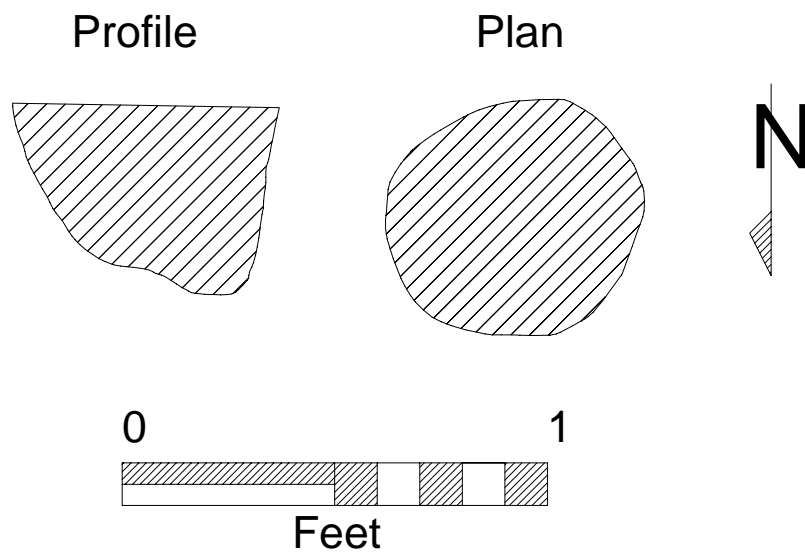


Figure 4: Plan and profile of hole # 34.

## 4 Damage Assessment of Archeological Resources

Damage assessment to Federally owned or controlled archeological resources in violation of the Archeological Resources Protection Act of 1979, as amended (16 U.S.C. 470aa-470mm) can be obtained by determining three values: archeological value, commercial value, and the cost of restoration and repair to the resource. Guidelines for conducting such assessments to determine a monetary value are contained in 36 CFR 43.14. The criteria for determining these values and the values obtained are as follows:

### 4.1 Cost of Restoration and Repair

...the cost of restoration and repair...shall be the cost already incurred for emergency restoration and repair, which may include, but need not be limited to, the cost of the following: (1)reconstruction of the archeological resource; (2)stabilization of the archeological resource; (3)ground contour reconstruction and surface stabilization; (4)research necessary to carry out reconstruction or stabilization; (5)physical barriers or other protective devices, necessitated by the disturbance of the archeological resource, to protect it from further disturbance; (6)examination and analysis of the archeological resource including recording remaining archeological information, where necessitated by disturbance, in order to salvage remaining values which cannot be otherwise conserved; (7)reinterment of human remains...; and (8)preparation of reports relating to any of the above activities (7 CFR 43.14 (C)).

The cost of restoration and repair (Table 2) was computed using the specific criteria (items 2, 3, 6, and 8) contained in the guidelines quoted above. It represents the costs for assessing the damage from the unauthorized excavations including travel, report preparation, cataloging of the archival and artifact collection, and curation to the standards of 36CFR Part 79 (Curation of Federally Owned or Administered Archeological Collections) in perpetuity. This value totals \$2506.25.

Table 2: Cost of Restoration and Repair

RESTORATION AND REPAIR					
ACTIVITY					
TRAVEL	Travel to site	Archeologist GS-12/07	\$39.94	8	\$319.52
TRAVEL	Car Rental	Car Rental	\$54.92	2	\$109.84
TRAVEL	Gas	Gas	\$29.59	1	\$29.59
TRAVEL	Per Diem and Lodging	Per Diem and Lodging	\$77.50		\$0.00
ARCHEOLOGICAL FIELDWORK	Mapping and assessing damage	Archeologist GS-12/07	\$39.94	5	\$199.70
REPORT PREPARATION/PRODUCTION	Write report	Archeologist GS-12/07	\$39.94	40	\$1,597.60
LABORATORY ACTIVITIES	Curate fieldnotes, artifacts, photographs	1 box	\$250.00	1	\$250.00
TOTAL					\$2,506.25

## 4.2 Commercial Value

Commercial value was determined by William Henderson, proprietor of "The Picket Post" (an established Civil War relic business). The bases of the dropped bullets were not cleaned in order to look for specific rarities; therefore these values represent their minimum value (Table 3). A total of \$141.00 of artifacts were recovered from Mr. Godfrey; a total of \$146.00 of artifacts were recovered from Mr. Schmidt. The total commercial value of the artifacts recovered is \$287.00.

Table 3: Commercial Value

GODFREY items		Description	Value
Item #	Quantity		
05	1	Shell fragment	3.00
06	6	Dropped bullets	6.00
07	1	Iron roller buckle	2.00
08	1	Fired 2-ring bullet	2.00
09	1	Iron case shot	2.00
10	1	Small brass disk	1.00
11	4	Round musket balls	4.00
12	2	Bullet fragments	2.00
13	6	Fired bullets	6.00
14	16	Fired bullets	16.00
15	7	Dropped bullets	7.00
16	1	Fired musket ball	1.00
17	1	Melted lead	1.00
18	1	Dropped musket ball	1.00
19	1	Fired bullet, no rings, Enfield	2.00
20	2	Dropped bullets, 2-ring	6.00
21	1	Shell fragment	2.00
22	1	Rivet w/leather	1.00
30	1	CS copper fuse	55.00
31	2	Williams, type 11 cleaner bullets	6.00
32	1	Watch or locket frame	15.00
			141.00
SCHMIDT items		Description	Value
Item #	Quantity		
38	1	Dropped 2-ring bullet w/hole in nose	3.00
39	1	Dropped bullet	1.00
40	1	Williams, type 11 cleaner bullet, dropped	3.00
41	2	Knapsack hooks	2.00
42	1	Pack strap stud	1.00
56	1	Wood w/ possible artifact	35.00
57	1	Wood w/ possible artifact	35.00
58	1	Shell fragment	2.00
59	1	Iron roller buckle	2.00
61	5	Iron case shot, various pieces	16.00
62	1	Base of Williams cleaner bullet	1.00
63	1	Dropped musket ball	1.00
64	7	Dropped bullets	7.00
65	37	Fired bullets	37.00
			146.00

### **4.3 Archeological Value**

#### **4.3.1 Archeological Significance**

Archeological significance is defined by Criterion D of the National Register of Historic Places as properties that possess "...integrity of location, design, setting materials, workmanship, feeling, association.." and "...that have yielded, or may be likely to yield, information important in prehistory or history" (*National Register Bulletin* 36:24). Under Criterion D, integrity of association is measured in terms of the strength of the relationship between the site's data or information and the important research questions which may be either of a general or specific nature (*National Register Bulletin* 36: 32).

Archeological resources associated with historic house sites and taverns at the Wilderness Battlefield Unit have demonstrated the presence of significant archeological resources dating from the Civil War. Controlled excavations have been conducted at the Lacy House (Ellwood) and the Widow Tapp site producing information on the status, ethnicity, and household patterns of their occupants (Basalik et.al: 1985; Cooper and Orr: In preparation). Corresponding information was collected from the Catherine Furnace and Wilderness Tavern sites. All archeological investigations have identified archeological resources significant under Criterion D of the National Register "...that have yielded, or may be likely to yield, information important in prehistory or history" (NRB 36:24).

Archeological investigation of large battle areas apart from domestic complexes have not been attempted at the Wilderness Battlefield Unit. Archeological investigations conducted by the National Park Service are usually in support of either restoration of historic structures or to answer research questions posed by interpretive needs identified in the park General Management Plan. Archeological investigations of large battlefield areas have been conducted within other national parks (including the Chalmette Unit of Jean Lafitte National Historical Park, and Little Bighorn Battlefield) which have either added to existing knowledge, or provided new insight into undocumented aspects of the battles.

At the Chalmette Unit of Jean Lafitte National Historical Park, archeologists from the National Park Service's Southeast Archeology Center conducted a combined program of interval shovel testing and metal detector surveying to verify historical accounts of the Battle of New Orleans. On January 8, 1815, the British forces under Pakenham sent 5,400 soldiers head on against the American positions. The withering fire from Jackson's artillery and small arms tore through their ranks with devastating effect. Gen. Samuel Gibbs' brigade came under tremendous fire from Gen. John Coffee's Tennesseans holding the American left flank near the swamp, and many of the British officers, including Gibbs, were killed. Gen. John Keane, attempting to come to Gibbs' aid, ordered the 93rd Highlanders to march diagonally across the field from near the

river. This movement exposed the regiment to a raking fire from the American line that inflicted frightful casualties, including Keane himself. Pakenham rode forward to rally his men for another attack and was mortally wounded. Col. Robert Rennie's British units nearest the river actually gained the top of the mud rampart before being repulsed. Careful mapping of the artifacts identified in the metal detector survey using advanced GPS technology (decimeter accuracy) allowed the archeologists to determine that indeed the bulk of the fighting had been conducted on Jackson's left flank and thus increasing confidence in the public interpretation of the battle action to near certainty.

At the Little Bighorn Battlefield National Monument (which commemorates the engagement between the United States 7<sup>th</sup> Cavalry under Custer bands of Lakota Sioux, Cheyenne, and Arapaho on June 25, 1876) archeologists from the National Park Service's Midwest Archeological Center conducted a metal detector inventory of the battlefield and marked the location of suspected artifacts with a pinflag. Behind them came a recovery crew who would excavate cautiously, searching for the object that caused the detector to signal. When found, the object was carefully left in place. Finally, a survey crew came along, using either a transit or theodolite, and determine the angle and distance of the surrounding artifacts from that point. This crew would make notes on the depth of the artifact below ground surface, and in the case of bullets and cartridges, also note the orientation and the declination of the piece. Only then was the artifact collected. The investigation resulted in a significant reinterpretation of the battle events. Some of the reinterpretation is particularistic in nature, literally following combatant movements across the field or revealing physical evidence that combined with oral tradition identifies the site and occupants of a previously unknown Lakota camp circle on the west side of the Little Bighorn river. Other elements allow a broader re-evaluation of the events.

Ferrous (iron) objects composed an important category of artifacts whose absence (such as from uncontrolled relic hunting) would have impaired the quality of those resources for answering important research questions which form the basis for significance under Criterion D of the National Register of Historic Places.

#### 4.3.2 Research Design

All archeological activities conducted within the National Park Service are conducted under a prepared research design (*Director's Orders* 28: 2.17) which identifies the resources to be examined, the important research questions which will be addressed, the field methodology employed to collect the data, laboratory and curation activities that will be used to ensure the collection's long-term security and accessibility, and the method for disseminating the results of the investigation.

## Important Research Questions

Important research questions that could have been addressed at the area of unauthorized excavation at the Wilderness Battlefield relate to the action on the afternoon of May 5, 1864 that precipitated the general engagement that neither commanding general wanted. Although the general location of the initial Confederate lines, the point of attack by the Union troops, their successful repulse, and the final Confederate positions are known, increased precision of these locations could clarify important aspects of that action. The trajectory of the Union assault (Wadsworth's Division composed of the Brigades of Cutler, Stone, and Rice) south of the Orange Turnpike was interrupted by Stone's Brigade wallowing in the wetlands of Mill Branch as well as Rice's continued advance, resulting in a bow in the Union line (Figure 5). Gordon's Brigade of confederates are thought to have entered the bow in the line undetected. Fire from Gordon's Brigade caused panic in Stone's Union troops resulting in their retreat which exposed Rice's right flank. "The retirement quickly became a rout" (Steere 1994: 170), resulting in Wadsworth's retreat to their starting point in Sander's Field near the Lacy House.

Important research questions that may be addressed through archeology about the battle action are:

- Where was the initial Confederate position (evidenced by the recovery of shot rounds of Union type and caliber and dropped rounds of Confederate type and caliber as well as Confederate buttons and accouterments)?
- Where was Cutler's farthest position of advance (evidenced by the recovery of shot rounds of Confederate type and caliber, dropped rounds of Union type and caliber, and Union Buttons and accouterments)?
- What was the position of the Confederates that fired into Stone's Brigade in the wetlands (evidenced by dropped rounds of Confederate type and caliber and smaller quantities of Confederate buttons and accouterments)?
- What was the trajectory of Rice's advance that bowed the Union line and left it vulnerable (evidenced by the farthest west position of fired rounds of Confederate type and caliber, dropped rounds of Union type and caliber, and Union Buttons and accouterments)?
- What arms were employed at the battle (evidenced by the range of rounds, cartridge, and percussion cap types)?
- Did artillery fire effect the engagement, what was its range, and what types of shells were used?
- How did changes in the groundcover affect visibility and movement (ground cover at specific locations may be identified through fossil pollen and phytolith analysis)?

The first six questions may be addressed through examination of the relative quantity, location and orientation of ferrous objects. These are precisely the types of objects which were recovered as evidence (Table 3).

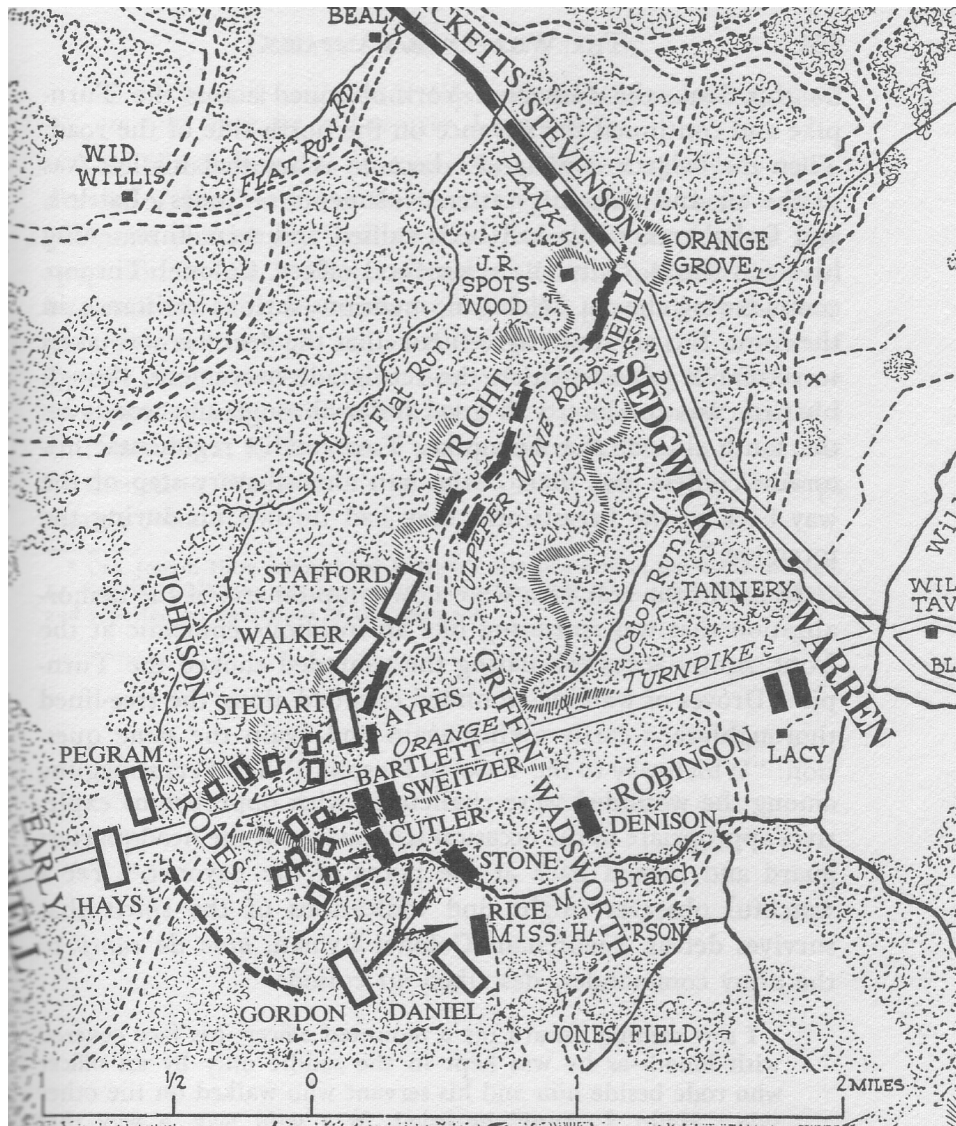


Figure 5: Critical troop movements in area of unauthorized excavation.

## Field Methodology

A metal detector survey of a 25 acre area of the Wilderness Battlefield Unit of the Fredericksburg and Spotsylvania County Battlefields Memorial National Military Park.

1. All supervisory personnel will meet the Secretary of the Interior's Guidelines for Professional Qualifications Standards. The minimum professional qualifications in archeology are a graduate degree in archeology, anthropology, or closely related field plus:
  - At least one year of full-time professional experience or equivalent specialized training in archeological research, administration or management;
  - At least four months of supervised field and analytic experience in general North American archeology; and
  - Demonstrated ability to carry research to completion.In addition to these minimum qualifications, a professional in historic archeology shall have at least one year of full-time professional experience at a supervisory level in the study of archeological resources of the historic period (DO 28:55).
2. The following standards will be maintained in conformance Secretary of the Interior's Guidelines for Archeological Documentation (DO 28: Appendix C: 45).

A site grid will be established to assist with horizontal control of the excavations as well as a site datum to maintain vertical control of the excavations. A total station laser transit will be employed for sub-centimeter accuracy.

The following field records will be maintained; a catalog of field specimens where every excavated provenience is given a sequential number in the field, a photographic log, a list Of features, and a daily record of the observations and procedures conducted by the on-site field supervisor (the latter will include Feature Recording Forms and Level Recording Forms).

The survey will be conducted in one-acre blocks. Metal detector sweeps will be conducted along grid lines with positive readings marked with pin flags. After the sweeps of the one-acre block has been completed, the artifacts will be excavated in situ with their location, orientation (direction and declination) and depth below datum recorded with the transit. This information will be recorded on a separate excavation form as well as a master form managed by the site supervisor. At the end of each day, no pin flags may remain on the site to ensure security. Artifact information (location, elevation, type, orientation) will be recorded on an electronic database (Microsoft Access or equivalent) for incorporation into the park's Geographic Information Syatem (GIS).

If artifacts are identified in archeological features, the following standards will apply:

If features are encountered during testing, they will be examined in the following manner: Features will be excavated by natural internal stratigraphy. If the observable stratum is greater than 0.2 feet thick, then excavation will proceed for that stratum in 0.2 feet thick arbitrary levels. Up to 10 gallons will be recovered from each feature for flotation for small flora and fauna analysis. Soil from feature fill which will be passed through 1/16 inch hardware cloth to ensure adequate faunal and gross botanical recovery.

#### Artifact and Archival Cataloging

Each object will be fully cataloged with the identifying letters and numbers as designated by the Park Curator. Each object or lot shall then be cataloged to the standards as set forth by the NPS *Museum Handbook*. Any directions supplemental to the *Museum Handbook* shall be provided by the Park Curator and/or Park Archeologist. The most significant objects shall be photographed according to the procedures in the *Museum Handbook*.

Field books, inventory sheets, reports, correspondence, maps, drawings, photographs, slides, and other associated documentation shall be cataloged according to standards set forth by the *Museum Handbook* with supplemental directions provided by the Park Curator. All materials will be contained in acid-free folders, boxes, and artifact bags. Number 2 lead pencils shall be used to mark folders.

All catalog cards shall be entered into a computer using the Rediscovery (ANCS+) system that has been developed by the NPS. Both the artifacts and associated documentation shall be entered into the computer. All work and files shall be done as to be fully compatible with ANCS+ and reproducible on the following software combination: ANCS+, Microsoft Access, and Microsoft Windows 95.

#### Dissemination of Results

Fifty (50) copies of the report shall be printed and distributed in accordance with DO28 Appendix D: Distribution/Availability of Final Cultural Resource Reports. Prior to distribution the report must be evaluated for availability according to 43 CFR Part 7.18(a)(1).

#### 4.3.3 Implementing the Research Design

Table 4 presents the allocation of resources necessary to implement the research design that addresses the important research questions that compose the Criterion D significance of the resources damaged by the unauthorized excavation. This is the archeological value of the damaged resources and totals \$19,554.68.

Table 4: Archeological Value

ARCHEOLOGICAL VALUE					
ACTIVITY	SUB-ACTIVITY	PERSONNEL	WAGE/HOUR	HOURS	AMOUNT
RESEARCH DESIGN	Historical Background Research	Historian GS-13	\$37.43	8	\$299.44
RESEARCH DESIGN	Design Archeological Work	Archeologist GS-12	\$31.47	12	\$377.64
RESEARCH DESIGN	Word Processing	Secretary GS-5	\$14.32	4	\$57.28
RESEARCH DESIGN	Map Production	Scientific Illustrator GS-7	\$17.74	12	\$212.88
ARCHEOLOGICAL FIELDWORK	Establish Survey Control	Archeologist GS-11	\$26.26	8	\$210.08
ARCHEOLOGICAL FIELDWORK	Establish Survey Control	Archeology Technician GS-5	\$14.32	8	\$114.56
ARCHEOLOGICAL FIELDWORK	Geophysical Prospecting/Magnetics	Archeologist GS-11	\$26.26	120	\$3,151.20
ARCHEOLOGICAL FIELDWORK	Geophysical Prospecting/Magnetics	Archeology Technician GS-5	\$14.32	120	\$1,718.40
ARCHEOLOGICAL FIELDWORK	Controlled Excavation	Archeologist GS-11	\$26.26	40	\$1,050.40
ARCHEOLOGICAL FIELDWORK	Controlled Excavation	Archeology Technician GS-5	\$14.32	40	\$572.80
ARCHEOLOGICAL FIELDWORK	Review and check field documents	Archeologist GS-11	\$26.26	12	\$315.12
ARCHEOLOGICAL FIELDWORK	Park coordination and administration	Archeologist GS-11	\$26.26	4	\$105.04
ARCHEOLOGICAL FIELDWORK	Film and processing	Film and processing	\$13.00	4	\$52.00
TRAVEL	Per Diem	Per Diem	\$77.50	42	\$3,255.00
TRANSPORTATION	Vehicle rental and gas	Vehicle rental and gas	\$50.00	21	\$1,050.00
LABORATORY ACTIVITIES	Artifact Cleaning	Archeology Technician GS-5	\$14.32	24	\$343.68
LABORATORY ACTIVITIES	Artifact Analysis	Archeologist GS-11	\$26.26	40	\$1,050.40
LABORATORY ACTIVITIES	Artifact Analysis	Archeology Technician GS-5	\$14.32	80	\$1,145.60
CURATION ACTIVITIES	ANCS Cataloging	Archeologist GS-11	\$26.26	20	\$525.20
CURATION ACTIVITIES	ANCS Cataloging	Archeology Technician GS-5	\$14.32	60	\$859.20
CURATION ACTIVITIES	Bags and supplies	Bags and supplies	\$75.00	1	\$75.00
CURATION ACTIVITIES	Archival Box Curation	Archival Box Curation	\$250.00	2	\$500.00
REPORT PREPARATION AND PRODUCTION	Write Report	Archeologist GS-11	\$26.26	40	\$1,050.40
REPORT PREPARATION AND PRODUCTION	Prepare Figures and Maps	Scientific Illustrator GS-7	\$17.74	40	\$709.60
REPORT PREPARATION AND PRODUCTION	Word Processing	Secretary GS-5	\$14.32	24	\$343.68
REPORT PREPARATION AND PRODUCTION	Copy Editing	Writer/Editor GS-11	\$26.26	8	\$210.08
REPORT PREPARATION AND PRODUCTION	Collating, Printing, Binding	Collating, Printing, Binding	\$200.00	1	\$200.00
TOTAL					\$19,554.68

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